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EXAMINER	
ZAIDI, IQBAL	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/590,209	NAVEN ET AL.	
	Examiner	Art Unit	
	IQBAL ZAIDI	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24,26-28,and 35- 48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *29-31 and 33* is/are allowed.

6)☒ Claim(s) *1-24,26-28,and 35- 48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to applicant's amendment filed on Jan 31, 2011 for Application No. 10/590209.

2. Claims 1-24, 26-28 and 35-48, are pending in this application.

Allowable Subject Matter

3. **Claims 15-18, and 42-47** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claim.

Regarding claims 15-18, the limitation " **which the associative memory is equipped with a binary command vector operable to engage search logic which in one case is for a set aside queue formation request and thereby performs a minimal length matching operation on the contents of the associative memory and in the case of the assignment of a data packet to a pre-existing set aside queue, thereby performs a maximal length matching operation on the contents of the associative memory** " recited on **claim 15** cannot be found in combination with other limitations.

Regarding claims 29-31, and 33, and 42-47, the limitation " **wherein at least one of the ingress ports or egress ports comprises storage for storing details of a congestion tree comprising at least three connected ports in which in use, the switch is located which at least one of the ingress or egress ports comprises an**

ingress or egress engine configured in use to receive a data packet; determine from the data packet its eventual destination; and, if the data packet is destined for a congested port to store the packet in the set aside queue and if it is destined for an uncongested port to store the packet in a cold queue for transmission to the uncongested port " recited on **claims 29 and 42** cannot be found in combination with other limitations.

Response to Argument

4. Applicant's arguments with respect to claims 1-14, 19-24, 26-28 and 36-41, and 48 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to **claims 19-24, 36-38 and 41** have been considered. However, Examiner respectfully disagrees.

In claims 19-24, 36-38 and 41, applicant has claimed "a signalling protocol". According to one of ordinary skill in the art, a protocol is a formal description of digital message formats and the rules for exchanging those messages in or between computing systems and in telecommunications. A description of digital message formats and rules for exchanging messages do not fall under one of the four categories of invention (process, machine, manufacture, and composition of matter). Furthermore, a claim that covers both statutory and non-statutory embodiments embraces subject matter that is not eligible for patent protection and therefore is directed to non-statutory subject matter.

However the new ground(s) of rejection is made in view of Carlsen et al. (US 20050088969, Apr. 28, 2005).

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

claims 19-24, 36-38 and 41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In claims 19-24, 36-38 and 41, applicant has claimed "a signalling protocol". According to one of ordinary skill in the art, a protocol is a formal description of digital message formats and the rules for exchanging those messages in or between computing systems and in telecommunications. A description of digital message formats and rules for exchanging messages do not fall under one of the four categories of invention (process, machine, manufacture, and composition of matter). Furthermore, a claim that covers both statutory and non-statutory embodiments embraces subject matter that is not eligible for patent protection and therefore is directed to non-statutory subject matter.

Therefore, **claims 19-24, 36-38 and 41** are directed to non-statutory subject matter as computer program, per se.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-24, and 42-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claims 1, 15, and 42** each recites the phrase "**data packets destined for that port**" renders the claims indefinite. Prior to the recitation of "that port," there are recitations of a plurality of different ports (e.g. a first ingress or egress port, an upstream port, etc.). Thus, it is unclear which port "that port" refers to.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-14, 19-24, 26-28 and 35-41, and 48** are rejected under 35 U.S.C 102(e) as being anticipated by Carlsen et al. (US 20050088969, Apr. 28, 2005) (hereinafter Carlsen).

Regarding **Claim 1**, Carlsen discloses a method of congestion management within a switch or network of connected switches wherein the or each of the switches has a plurality of ingress ports and a plurality of egress ports *(page 3, par(0029), line 1-5, Switch 100 is a director class Fibre Channel switch having a plurality of Fibre Channel ports. The ports are physically located on one or more boards inside of switch 100, namely ingress board and egress board, a director class switch 100 contain eight or more such boards(having plurality of ingress and egress ports))*,

the method comprising when congestion is detected at a first ingress or egress port *(page 1, abstract, line 1-5, A congestion notification mechanism provides a congestion status for all destinations in a switch at each ingress port)*, sending a message to an upstream port connected to the first ingress or egress port indicating that congestion has occurred at a particular port and requesting storage at the upstream port of data packets destined for that port *(page 1, par(0009), line 15-20, If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch(sending message to upstream port))*;

and, in dependence on the amount of data packets destined for the congested port stored at said upstream port *(page 1, par (0007), line 15-20, a switch encounters a*

frame that cannot be delivered due to congestion at the destination port. This frame remains at the top of the buffer (stored at upstream port)),
sending from the upstream port to a further upstream port a message informing said further upstream port of the congestion at the first ingress or egress congested port*(See Fig 1, page 9, par (0104), line 5-10, When a threshold is crossed, In this manner, the four cell credit managers 440,441 send the same message (congestion message) event 452 to all four XON history registers 442 and all sixteen XOFF masks 408 on the I10 board 120, 122(board 120 have upstream ports),122(board 122 have further upstream port), effectively unifying the cell credit congestion notification across the board 120, 122(further upstream ports)))*, said further upstream port storing at said further upstream port data packets destined for the first ingress or egress congested port*(See Fig 1, page 9, par (0104), line 5-10, When a threshold is crossed, In this manner, the four cell credit managers 440,441 send the same message (congestion message) event 452 to all four registers 442 (theses registers are storing the status)and all sixteen masks 408 on the 1/o board 120, 122(board 120 have upstream ports),122(board 122 have further upstream port), effectively unifying the cell credit congestion notification across the board 120, 122(further upstream ports))*.

Regarding **Claim 2**, Carlsen discloses at said upstream port, allocating memory for use as a set-aside- queue for data packets destined for the congested port *(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers*

and locations in buffer memory 320 for frames waiting to be sent to a destination port 114 that is currently busy).

Regarding **Claim 3**, Carlsen discloses upstream port creating an entry in a memory to indicate that congestion has occurred at the particular port*(page 1, par (00009), line 15-20, If a destination port (particular port) becomes congested, the flow control process determines which virtual channel on the ISL is affected)*; and, checking packets subsequently received at the upstream port against the entry in the memory and*(page 1, par (00009), line 15-20, If a destination port (particular port) becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel)*, if a packet is directed to the congested port, storing said packet in the corresponding set aside queue port *(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114 that is currently busy (congested port)).*

Regarding **Claim 4**, Carlsen discloses within the upstream port, allocating one or more set aside queues in dependence on messages received from the first port *(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114 that is currently busy (congested port)).*

Regarding **Claim 5**, Carlsen discloses the upstream port controlling data flow into and out of the set aside queue in dependence on the congestion *(page 1, par (0008), line 8-16, Deferred queuing requires that all incoming data frames that are destined for a congested port be placed in a deferred queue, which keeps these frames from unduly interfering with frames destined for uncongested ports. This technique requires a dependable method for determining the congestion status for all destinations at each input port).*

Regarding **Claim 6**, Carlsen discloses de-allocating the one of more set aside queues in dependence on one or more criteria *(page 4, The memory controller 310 identifies new Fibre Channel frames arriving in credit memory 320, and shares the frame's destination ID and its location in credit memory 320 with the inbound routing module 330).*

Regarding **Claim 7**, Carlsen discloses the one or more criteria include the amount of data in the set aside queue *(page 4, The memory controller module 310 is responsible for storing the incoming data frame on the inbound frame buffer memory 320. Each port 110 on the PPD 130 is allocated a separate portion of the buffer 320).*

Regarding **Claim 8**, Carlsen discloses the message requesting establishment of a set aside queue is discarded by the upstream port if the congestion identified in the

request is further downstream than the original congestion *(page 6, par (0074), line 16-20, the eMS 182 is able to accept additional packets of data before the iMS 180 stops sending data (after identify congestion), that new packets arriving at the eMS 182 will be discarded).*

Regarding **Claim 9**, Carlsen discloses the message indicating that congestion has occurred includes a token to be kept by the upstream port to identify the upstream port as a leaf port within a congestion tree *(page 1, flow control technique monitors the congestion status of all destination ports at the downstream switch, if a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel.*

Regarding **Claim 10**, Carlsen discloses storing data about the number of leaves in the congestion tree in each switch in the tree *(page 1,par(0043), The memory controller module 310 is responsible for storing the incoming data frame on the inbound frame buffer memory 320. Each port 110 on the PPD 130 is allocated a separate portion of the buffer 320. Alternatively, each port 110 could be given a separate physical buffer 320).*

Regarding **Claim 11**, Carlsen discloses when a set aside queue is de-allocated, the leaf token is returned by the upstream switch to the adjacent downstream switch,

the method comprising maintaining a record relating to leaf switches that have returned a leaf token*(page 5, The cells are then removed from the 0-COS-Q 280 and are submitted to the PPD 262 for the egress port 114, which converts the cells back(returned) into a Fibre Channel frame and sends it across the ISL 230 to the downstream switch 270).*

Regarding **Claim 12**, Carlsen discloses when a subsequent packet is received by the upstream port *(page 1, sends an XOFF message so informing the upstream switch)*, if it is destined for the congestion, storing it in a set aside queue, and if it is not destined for the congestion, storing it in a cold queue at the upstream port*(page 4, page 4, See Fig 1,shows queue control module 400 which shows The queue control module 400 has four primary components, namely the deferred queue 402, the backup queue 404, the header select logic 406, and the XOFF mask 408, these components work in conjunction with the XON History register 420 and the cell credit manager or credit module 440 to control ingress queuing and to assist in managing flow control within switch 100. The deferred queue 402(set aside queue) stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114).*

Regarding **Claim 13**, Carlsen discloses when a packet is received at the upstream port that is destined for the congestion*(page 4, See Fig 1,shows the deferred queue 402 stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114)*, storing a marker in the cold

queue to provide an indication of the order in which the congestion-bound packet was received with respect to packets already in the cold queue which are also destined for the congestion*(page 7, the defer signal 414 will also be set, effectively stopping all traffic, when the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402)*.

Regarding **Claim 14**, Carlsen discloses the memory is provided as an associative memory *(column 4, lines 40-47, the look-up device is a content addressable memory)*.

Regarding **claim 48**, Carlsen discloses further upstream port, allocating memory for use as a set-aside-queue for data packets destined for the first ingress or egress congested port *(page 1, par(0008), line 15-17, Deferred queuing requires that all incoming data frames that are destined for a congested port be placed in a deferred queue(set aside queue))*.

Regarding **Claim 19**, Carlsen discloses a signalling protocol for managing congestion within a network of switches, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port *(page 1, the flow control process determines which virtual channel on the*

ISL is affected, and sends the message so informing the upstream switch. The upstream switch will then stop sending data on the affected virtual channel), the first message requesting establishment at the upstream port of a set aside queue for storing data packets received by the upstream switch destined for the source of congestion*(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114 that is currently busy (congested port))*, the message including a token for storage by said upstream port, the protocol operating such that when said congestion clears, the established set aside queue is de-allocated and the corresponding token is passed downstream in the direction of the previously congested port*(page 1, par (00008), line 15-20, Deferred queuing (set aside queue) requires that all incoming data frames that are destined for a congested port be placed in a deferred queue, which keeps these frames from unduly interfering with frames destined for uncongested ports. This technique determining the congestion status for all destinations at each input port)*,

in which when a certain amount of data packets are stored within the set aside queue in said upstream port a message containing a token is sent by said upstream port to a further upstream port requesting establishment of a set aside queue at said further upstream port for storage of data packets destined for the first port at which congestion has been detected*(See Fig 1, page 9, par (0104), line 5-10, When a threshold is crossed, In this manner, the four cell credit managers 440,441 send the same message (congestion message) event 452 to all four registers 442 (theses registers are storing*

the status)and all sixteen masks 408 on the 1/o board 120, 122(board 120 have upstream ports),122(board 122 have further upstream port), effectively unifying the cell credit congestion notification across the board 120, 122(further upstream ports)).

Regarding **Claim 20**, Carlsen discloses an acknowledgement message for sending from the upstream port to the first port to confirm establishment of the requested set aside queue*(page 10, and ingress memory subsystem so as to establish a separate queue(set aside queue) for each destination on the switch).*

Regarding **Claim 21**, Carlsen discloses a flow control message for sending from the first port to the upstream port including data relating to the congestion at the first port *(page 7, a force defer signal that is controlled by the microprocessor 124 is also able to cause the defer signal 414 to go on. When the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402).*

Regarding **Claim 22**, Carlsen discloses a notification for sending from the upstream port to the first port informing the first port of de- allocation of the set aside queue when a set aside queue is no longer required *(page 7, a force defer signal that is controlled by the microprocessor 124 is also able to cause the defer signal 414 to go on. When the defer signal 414 is set, it informs the header select logic 406 and the*

remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402).

Regarding **Claim 23**, Carlsen discloses a message for informing the first port that the upstream port has de-allocated an old set aside queue *(page 7, the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402).*

Regarding **Claim 24**, Carlsen discloses a message for sending to the upstream port from the first port instructing the upstream port to modulate its rate of packet transmission to a specified downstream set aside queue *(page 2, See Fig. 4, FIG. 4 is a block diagram showing the queuing utilized in an upstream switch and a downstream switch communicating over an interswitch link).*

25. (Cancelled).

Regarding **Claim 26**, Carlsen discloses a switch for use in a network of switches, the switch comprising two or more ingress ports *(page 3, par (0029), line 1-5, Switch 100 is a director class Fibre Channel switch having a plurality of Fibre Channel ports. The ports are physically located on one or more boards inside of switch 100, namely ingress board and egress board, a director class switch 100 contain eight or more such boards (having plurality of ingress and egress ports))*;

two or more egress ports *(page 3, par (0029), line 1-5, Switch 100 is a director class Fibre Channel switch having a plurality of Fibre Channel ports. The ports are physically located on one or more boards inside of switch 100, namely ingress board and egress board, a director class switch 100 contain eight or more such boards(having plurality of ingress and egress ports))*;

a switch fabric for selectively coupling data packets received at one or more of the ingress ports to one or more of the egress ports*(page 3, par (0029), line 1-5, Switch 100 is a director class Fibre Channel switch having a plurality of Fibre Channel ports(one or more ingress and egress ports))*;

storage for, in response to a request for storage of data packets destined for a downstream congested port, storing selected data packets*(page 6, par (0068), line 1-5 , a particular data frame encounters a congested port within the downstream switch 270)*;

selection means, for selectively routing a received data packet to the storage in dependence on the detected desired destination of the packet*(page 6, par (0064), line 1-5 , When the frame is received at port 112, it is placed in credit memory 320. The D-ID of the frame is examined, and the frame is queued and a routing determination is made)*; and

request generation means arranged to send a request to a further upstream port to request storage of data packets destined for the downstream congested port at said further upstream port when a threshold amount of data packets destined for the downstream congested port are stored in the storage *(page 6, par (0068), line 1-5 ,See Fig 4, shows a virtual input queue structure 282 within each ingress port 112 in*

downstream switch 270. Each of these (data packets) corresponds to one of the virtual channels, which in turn corresponds to one of the (data packets) on the upstream switch. By assigning frames to ingress port 112, the downstream switch 270 can identify which data packets in switch 260 was assigned to the frame. As a result, if a particular data frame encounters a congested port within the downstream switch 270, the switch 270 is able to communicate that congestion to the upstream switch by performing flow control for the virtual channel 240 assigned to that V-I-Q 282.).

Regarding **Claim 27**, Carlsen discloses the selection means comprises a content addressable memory*(page 4, par (0034), line 1-5, The iMS 180 assigns the packet a packet ID (or "PID") that indicates the cell buffer address(addressable memory)).*

Regarding **Claim 28**, Carlsen discloses a set aside queue is only formed in response to the request if one or more of a number of criteria are satisfied *(page 4, par (00048), line 1-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer memory 320).*

34. (Cancelled).

Regarding **claim 35** , Carlsen discloses a network of interconnected switches connected in a topology, the network comprising a plurality of switches wherein at least two of the switches are switches according to claim 26*(See Fig 4, shows switch 260 and switch 270 are connected, which is a plurality of switches.*

Regarding **Claim 36**, Carlsen discloses a signalling protocol for managing congestion within a network of switches, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port*(page 1, abstract, line 1-5, A congestion notification mechanism provides a congestion status for all destinations in a switch at each ingress port)*, the first message requesting storage of data packets received by said upstream port destined for the congested first port*(page 1, par(0009), line 15-20, If a destination port becomes congested(first congested port), the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the upstream switch(sending message to upstream port))*; and,

a second message for sending by the upstream port to a port further upstream when a threshold amount of data packets destined for the congested first port have been received and stored by the said upstream port*(See Fig 1, page 9, par (0104), line 5-10, When a threshold is crossed, In this manner, the four cell credit managers 440,441 send the same message (congestion message) event 452 to all four XON history registers 442 and all sixteen XOFF masks 408 on the I10 board 120, 122(board 120 have upstream ports),122(board 122 have further upstream port), effectively unifying the cell credit congestion notification across the board 120, 122(further upstream ports)))*, said message requesting storage of data packets destined for the congested first port received by said further upstream port*(See Fig 1, page 9, par (0104), line 5-10, When a threshold is crossed, In this manner, the four cell credit managers 440,441 send the same message (congestion message) event 452 to all four registers 442*

(theses registers are storing the status)and all sixteen masks 408 on the 1/o board 120, 122(board 120 have upstream ports),122(board 122 have further upstream port), effectively unifying the cell credit congestion notification across the board 120, 122(further upstream ports)).

Regarding **Claim 37**, Carlsen discloses when storage is requested by either a message from the congested port or the message form said upstream port, said upstream port and said further upstream port respectively are controlled to allocate a set aside queue at said upstream port or at said further upstream port respectively for storage of data packets destined for the congested port*(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114 that is currently busy (congested port)).*

Regarding **Claim 38**, Carlsen discloses when the set-aside- queue at either or both of said upstream port and said further upstream port have become empty said set-aside-queue may be deallocated ***(****page 7, the defer signal 414 is set, it informs the header select logic 406 and the remaining elements of the queue module 400 that the port 110 having the address on next frame header output 415 is congested, and this frame should be stored on the deferred queue 402).*

Regarding **Claim 39**, Carlsen discloses an endstation for use in a network of interconnected switches, the end station comprising an ingress port for receiving data packets from a network to which in use the end station is connected*(page 7, par(0005), line 5, One node can be connected directly to another, or can be interconnected such as by means of a Fibre Channel fabric)*;
an egress port for providing data packets to a network to which in use the end station is connected*(page 7, par(0005), line 5, One node(egress port) can be connected directly to another)*;
in which the egress port includes means operable in use to receive a message from a downstream port*(page 1, par(0009), line 5, control technique monitors the congestion status of all destination ports at the downstream switch)*, the message containing data relating to a congested port further downstream than the downstream port and a request to provide storage for data packets destined for the congested port further downstream*(page 1, par(0009), line 5, control technique monitors the congestion status of all destination ports at the downstream switch, If a destination port becomes congested, the flow control process determines which virtual channel on the ISL is affected, and sends an message so informing the switch(further downstream switch)).*

Regarding **Claim 40**, Carlsen discloses a control device operable in use to, in response to the message received from the network, allocate a set-aside queue for storing of data packets destined for the congested port *(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer*

memory 320 for frames waiting to be sent to a destination port 114 that is currently busy).

Regarding **Claim 41**, Carlsen discloses for use within the signalling protocol of for managing congestion within a network of switches *(page 2, par (00011), line 5-10, a method for noticing port congestion and informing ingress ports of the congestion, which utilizes a switch that submits data to a crossbar component for making connections to a destination port)*, the protocol comprising a first message for sending from a first port at which congestion is detected to an upstream port connected to the first port*(page 5, par (00068), line 5-10, if a particular data frame encounters a congested port within the downstream switch , the switch is able to communicate that congestion to the upstream switch by performing flow control for the virtual channel)*, the first message requesting establishment at the upstream port of a set aside queue for storing data packets received by the upstream switch destined for the source of congestion, the message including a token for storage by said upstream port*(page 4, par (00048), line 15-20, The deferred queue (set-aside-queue) stores the frame headers and locations in buffer memory 320 for frames waiting to be sent to a destination port 114 that is currently busy (congested port)).*

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to IQBAL ZAIDI whose telephone number is (571)270-3897. The examiner can normally be reached on 7:30a.m to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGO RICKY can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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